

MTHK 5382-110, CRN @@@ GUIDED RESEARCH IN MATHEMATICS

Spring 2023 rev. 01.09.2023

Texas A&M University - Central Texas

COURSE DATES, MODALITY, AND LOCATION

Jan 17, 2023 - May 12, 2023

The instructional method is online, and uses the A & M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>].

INSTRUCTOR AND CONTACT INFORMATION

Instructors: Christopher Thron

Office: All contact is online

Phone, text, and WhatsApp: (585) 204-0314

Email: Please email instructor via Canvas email.

Google Meet (for online meetings): chris.thron@gmail.com

You may contact me at any time by email or text. Often I can respond immediately, and if necessary we can meet online to answer your question right away. WhatsApp is also OK, but I may not see it right away.

Office Hours

The instructor is generally available online from 9 A.M.-1 P.M. and from 4 P.M.-6 P.M. on weekdays and Saturday. *Students are encouraged to make appointments to discuss issues with homework (both before and after grading). Each student is entitled to an average of ½ hour of face-to-face time with the instructor (besides questions you may have with the homework).*

Student-instructor interaction

Aside from the above, the instructor will schedule two regular online sessions per week for discussion and problem-solving. Sessions will be accessed within Canvas, and will be recorded.

Emergency Warning System for Texas A&M University-Central Texas

SAFEZONE. SafeZone provides a public safety application that gives you the ability to call for help with the push of a button. It also provides Texas A&M University-Central Texas the ability to communicate emergency information quickly via push notifications, email, and text messages. All students automatically receive email and text messages via their myCT accounts.

Downloading SafeZone allows access to push notifications and enables you to connect directly for help through the app.

You can download SafeZone from the app store and use your myCT credentials to log in. If you would like more information, you can visit the [SafeZone](http://www.safezoneapp.com) website [www.safezoneapp.com].

To register SafeZone on your phone, please follow these 3 easy steps:

1. Download the SafeZone App from your phone store using the link below:
 - [iPhone/iPad](https://apps.apple.com/app/safezone/id533054756): [<https://apps.apple.com/app/safezone/id533054756>]

- [Android Phone / Tablet](#)
[<https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp>]
2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)
 3. Complete your profile and accept the terms of service

For updates on COVID information, please monitor the University [website](#)
[<https://www.tamuct.edu/covid19/>]

Student Learning Outcomes

1. Develop a solution to a practical or theoretical problem that involves mathematical techniques such as machine learning, optimization, modeling and simulation, mathematical pedagogy, and so on.
2. Employ software as required to achieve and/or demonstrate the mathematical solution
3. Verify results of the research through rigorous, systematic testing
4. Document the research process in a comprehensive paper.

Required Reading and Textbook(s)

Materials include published and unpublished research, to be located and accessed via open-access resources on the web or via the TAMUCT library. Such materials may include (this list is not comprehensive):

- Articles from arxiv.org (Example: <https://arxiv.org/abs/2009.08310>)
- Articles from mathematical and technical journals (Examples: <https://www.mdpi.com/1999-4893/13/11/300>, <https://www.mdpi.com/2071-1050/12/21/8878>)
- Online courses (Example: <https://theoreticalminimum.com/courses>)
- Mathematics texts (Example: <https://sl2x.aimath.org/book/aafmt/>)

COURSE REQUIREMENTS AND GRADING

Students are required to keep a spreadsheet record of their activities for this class. The spreadsheet should have three columns: Date, hours worked, and summary of activities. The student is expected to put in 120 hours (16 weeks for 7.5 hours per week). Between 110-120 hours, the maximum grade is B. Below 110 hours, the maximum grade is C.

The basis for the course grade depends on the type of project: the possibilities are:

Software development: Student will post completed, documented software on GitHub. A software grading rubric is included on the next page.

Report: Student will produce a summary report of the research project, to be completed by the end of the semester. The report will be evaluated on the basis of originality, correctness, completeness, and clarity. Publishable work will receive an 'A' grade.

A grading rubric is included on the following page, with grading guidance as follows:

Average score on all items	4 and above	3.5-4	3-3.5	Below 3
Course grade				

	1	2	3	4	5	
	Not evident	Attempted but not successful	Present but needs improvement	Present and effective	Goes beyond needs of most users	
Design						
The user is able to move throughout the application without repetition or confusion						0
The software is highly interactive						0
The application accommodates users based on a variety of abilities						0
						0
Total						0
Content						
The software correctly performs tasks it is designed for						0
Coding follows agreed-upon syntax and formatting standards						
Software is commented so that programmers can follow the logic						
Software has been thoroughly tested, and tests have been documented						0
Total						0
Interface						
Screen display designs are easy to read						0
Screen elements enhance, not distract from the content						0
The application is consistent in how all of its tasks are executed						0
Display is clean, simple, and attractive						0
Users have control over the navigation						0
Controls for manipulating the						0
Total						0
Documentation						
The user's manual is laid out in a logical manner						0
User's manual sufficiently covers the software's functions						0
User's manual uses clear, non-technical language whenever possible						0
Total:						0
					Grand Total:	0

Report Rubric

<i>CATEGORY</i>	<i>4</i>	<i>3</i>	<i>2</i>	<i>1</i>
Introduction/ Thesis ——	*exceptional introduction that grabs interest of reader and states topic. **thesis is exceptionally clear, arguable, well-developed, and a definitive statement.	*proficient introduction that is interesting and states topic. **thesis is clear and arguable statement of position.	*basic introduction that states topic but lacks interest. **thesis is somewhat clear and arguable.	*weak or no introduction of topic. **paper's purpose is unclear/thesis is weak or missing.
Quality of Information/ Evidence ——	*paper is exceptionally researched, extremely detailed, and historically accurate. **information clearly relates to the thesis.	*information relates to the main topic. **paper is well-researched in detail and from a variety of sources.	*information relates to the main topic, few details and/or examples are given. **shows a limited variety of sources.	*information has little or nothing to do with the thesis. **information has weak or no connection to the thesis.
Support of Thesis/Analysis ——	*exceptionally critical, relevant and consistent connections made between evidence and thesis. **excellent analysis.	*consistent connections made between evidence and thesis **good analysis.	*some connections made between evidence and thesis. **some analysis.	*limited or no connections made between evidence and thesis. **lack of analysis.
Organization/ Development of Thesis ——	*exceptionally clear, logical, mature, and thorough development of thesis with excellent transitions between and within paragraphs.	*clear and logical order that supports thesis with good transitions between and within paragraphs.	*somewhat clear and logical development with basic transitions between and within paragraphs.	*lacks development of ideas with weak or no transitions between and within paragraphs.
Conclusion ——	*excellent summary of topic with concluding ideas that impact reader. **introduces no new information.	*good summary of topic with clear concluding ideas. **introduces no new information.	*basic summary of topic with some final concluding ideas. **introduces no new information.	*lack of summary of topic.
Style/Voice ——	**word choice is specific, purposeful, dynamic and varied. ***sentences are clear, active (subject-verb-object), and to the point.	**word choice is specific and purposeful, and somewhat varied throughout. ***sentences are mostly clear, active (SVO), and to the point.	**word choice is often unspecific, generic, redundant, and clichéd. ***sentences are somewhat unclear; excessive use of passive voice.	**word choice is excessively redundant, clichéd, and unspecific. ***sentences are very unclear.
Grammar/Usage/ Mechanics ——	*control of grammar, usage, and mechanics. **almost entirely free of spelling, punctuation, and grammatical errors.	*may contain few spelling, punctuation, and grammar errors.	*contains several spelling, punctuation, and grammar errors which detract from the paper's readability.	*so many spelling, punctuation, and grammar errors that the paper cannot be understood.
Works Cited/Bibliography	* Entries complete and formatted correctly	* entries mostly correct with few omissions	* Frequent errors in citations	*Numerous errors.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Student will have weekly or biweekly meetings with the instructor.

Important University Dates

<https://www.tamuct.edu/registrar/academic-calendar.html>]

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements

You will need a computer that can be used for videoconferencing.

Any software used during the course will be open-source and free.

Note: The following material is generic and is included in all TAMUCT syllabi.

This course will use the A&M-Central Texas Instructure Canvas learning management system.

We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email address. Password: Your MyCT password

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select “Chat with Canvas Support,” submit a support request through “Report a Problem,” or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

Online Proctored Testing

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in.

Other Technology Support

For log-in problems, students should contact Help Desk Central, 24 hours a day, 7 days a week

Email: helpdesk@tamu.edu

Phone: (254) 519-5466

[Web Chat: \[http://hdc.tamu.edu\]](http://hdc.tamu.edu)

Please let the support technician know you are an A&M-Central Texas student.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Academic Accommodations

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Warrior Center for Student Success, Equity and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations, please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our [Access & Inclusion](https://tamuct.instructure.com/courses/717) Canvas page (log-in required) [https://tamuct.instructure.com/courses/717]

Academic Integrity

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the student conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html), [https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may [submit a referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0), [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Drop Policy

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[https://federation.ngwebsolutions.com/sp/startSSO.ping?PartnerIdpld=https://eis-prod.ec.tamuct.edu:443/samlssso&SpSessionAuthnAdapterId=tamuctDF&TargetResource=https%3a%2f%2fdynamicforms.ngwebsolutions.com%2fSubmit%2fStart%2f53b8369e-0502-4f36-be43-f02a4202f612].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid

penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Important information for Pregnant and/or Parenting Students

Texas A&M University-Central Texas supports students who are pregnant, experiencing pregnancy-related conditions, and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit [Student Affairs](https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html) [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring

Tutoring is available to all A&M-Central Texas students, both virtually and in-person. Student success coaching is available online upon request.

If you have a question, are interested in becoming a tutor, or in need of success coaching contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, visit the Warrior Center at 212 Warrior Hall, or by emailing WarriorCenter@tamuct.edu.

To schedule tutoring sessions and view tutor availability, please visit [Tutor Matching Services](https://tutormatchingservice.com/TAMUCT) [https://tutormatchingservice.com/TAMUCT] or visit the Tutoring Center in 111 Warrior Hall.

Chat live with a remote tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

University Library & Archives

The University Library & Archives provides many services in support of research across campus and at a distance. We offer over 350 electronic databases containing approximately 631,525 eBooks and 75,149 journals, in addition to the 97,443 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft Teams or in-person at the library. [Schedule an appointment here](https://tamuct.libcal.com/appointments) [https://tamuct.libcal.com/appointments]. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](https://tamuct.libguides.com/index) [https://tamuct.libguides.com/index]

University Writing Center

University Writing Center: Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. The hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and Saturday 12:00-3:00 p.m.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WOnline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

OTHER POLICY STATEMENTS

A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if

someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [<https://www.tamuct.edu/compliance/titleix.html>].

Behavioral Intervention

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](#) online

[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](#) website for more information [<https://www.tamuct.edu/bit>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5805.